

REMARKS

By the present amendment, claim 1 has been amended to clarify that the recited tests runs are conducted while the tire/wheel assembly is mounted on a vehicle and that non-pressure-related data is compiled to evaluate tire performance. Claims 2, 4-6, 12-16 and 21 have been amended to correct what appears to be a typographical error and, in any event to correctly reflect the invention described in the specification.¹ Upon entry of this amendment, claims 1-24 will be pending in the application.

Claim Rejections - 35 USC § 102

Claim 1 has been rejected as being anticipated by U.S. Patent No. 5,313,827 to Yovichin. This patent discloses a method for detecting broken reinforcement cords in a "to-be-retreaded" tire. In this manner, retreading time and expense can be avoided when a tire having a defective carcass (*i.e.*, broken cords) is presented for retreading. Yovichin does not show or suggest test runs being performed while the tire/wheel assembly is mounted on a vehicle. Accordingly, the method of claim 1 (now specifically setting forth that the tire/assembly is mounted on a vehicle) is believed to be patentable over Yovichin.

1. As was explained in applicants' specification, "[b]ecause the pressure-controlling device 20 is specifically designed for a test environment, its pressure adjustments are much more refined than those used, for instance, on a pressure-controlling device for on-going use on passenger cars, for balancing purposes on industrial trucks, and/or for emergency situations on military vehicles. Specifically, the pressure-controlling device 20 is designed to adjust for pressure increases of less than 1/4 psi (0.250 psi), less than 1/8 psi (0.125 psi), less than 1/16 psi (0.062 psi), less than about 1/32 psi (0.031 psi), or about 1/36 psi (0.028 psi)." Specification, page 6, lines 18-25.

It is further noted that the unamended version of some of these claims would have opened the question of improper dependency. For example, a claims reciting "at least 1/16 psi" (claim 5) should not depend from a claim reciting "at least 1/4 psi" (claim 4).

Claim Rejections - 35 USC § 103

Claim 1 has been rejected as being obvious over U.S. Patent No. 6,278,363 to Bezek in view of U.S. Patent No. 5,472,032 to Winston.

Bezek is directed towards notifying a driver of an under-inflated condition in a "run-flat" tire so that he/she can seek appropriate maintenance and repair.² To this end, the Bezek system/method comprises a pressure sensor 12 that provides pressure data associated with a particular tire at an unknown relative position on the vehicle and a physical parameter sensor 14 (*i.e.*, an inertial sensor, an accelerometer, a lateral force detector, an accelerometer sensitive to lateral force, etc.) that provides information about the motion of a particular wheel on the vehicle. This data/information is then evaluated to provide the vehicle's operator with an indication that the air pressure of the particular tire at the relative mounting position is less than the proper air pressure, so that peak vehicle performance and necessary maintenance may be obtained.

Winston is directed towards the problem of the "unwillingness" of car/truck drivers "to monitor and maintain proper tire inflation" with "a filling station pressurized air supply or pump." To solve this problem, Winston proposes an apparatus for establishing and/or maintaining a predetermined gas pressure within a tire or other plenum.

The Examiner contends that, since both Bezek and Winston "are within the same field of endeavor," it would have been obvious to modify the Bezek device to include the Winston maintenance system "for the purpose of maintaining and regulating pressure within a tire in order to provide for more accurate testing." However, there is no testing occurring in the Bezek device - the only data being taken relates to tire pressure so that an alert can be sent to the driver. Significantly, if the Bezek device incorporated a Winston-like system for regulating pressure, the testing/compiling of the Bezek device would be superfluous. Accordingly, the proposed Bezek/Winston combination would

2. A vehicle operator may be unaware that a run-flat tire has lost its air pressure from visual inspection because of the construction of the run-flat tire. The run-flat tire generally handles adequately and is greatly superior in handling characteristics in comparison to a conventional flat tire that has lost air pressure. However, a vehicle operator may be unaware in the deterioration of the handling characteristics of a vehicle due to the loss of air pressure in the run-flat tire.

not lead to the claimed invention. Moreover, claim 1 has been amended to clarify that non-pressure-related data is taken during the multiple test runs, whereby even the so-called Bezek "compiling" would not include the claimed compiling step.³

Claims 2-11 have been rejected as being obvious over Bezek in view of Winston and further in view of U.S. Patent No. 4,582,108 to Markow. It is initially noted that these claims depend from claim 1 and that Markow does nothing to cure the above-discussed shortcomings of the Bezek/Winston combination. For this reason alone, claims 2-11 are believed to be patentable over the applied art.

With particular reference to claims 2-11, claims 2 and 3 set forth that the pressure-maintaining step comprises the step of releasing gas from the tire if the tire pressure exceeds the desired test pressure by about 1/36 psi. Claims 4-9 set forth the step of adjusting the tire pressure if the measured tire pressure is above or below the desired test pressure by less than about 1/4 psi (claims 4 and 7-9), less than about 1/16 psi (claim 5) and/or by about 1/36 psi (claim 6.)⁴ The Examiner comments that "it is obvious that any ordinary artisan skilled in the art can program a sensor to compare, adjust, and/or release a gas at any given specific tire pressure." It is respectfully submitted that the question is not whether an ordinary artisan could program a sensor to make precise adjustments, but rather whether the prior art would motivate such an ordinary artisan to do so. Nothing in the prior art has been found to even remotely suggest any application requiring such precise adjustments. Accordingly, the

3. As is explained applicant's specification, a vehicle (with the test tires installed thereon) is driven so that the relevant tire forces and footprints are measured. (For example, instrumentation associated with the vehicle and test surface is used to measure the desired tire properties and a contact patch photograph can be taken.) This process is repeated many times to collect enough data to statistically reach a desired confidence level in the evaluation. The purpose of this data is not to determine pressure variations, as the point of the invention is to eliminate any pressure variations to minimize data inconsistencies which would have resulted from tire pressure changes.

4. Claim 3 sets forth a motion detector to determine whether the tire/wheel assembly is at rest, and claim 9 sets forth that the adjusting step is performed when the vehicle is at rest between test runs. The Examiner contends in the Office Action that Markow "discloses a motion detector that determines if a tire is at rest (9,143)." The Examiner's assistance is respectfully requested in pointing to the passage where this motion detector is disclosed in the Markow reference so that this rejection may be more fully addressed.

motivation for making such precise adjustments is taught only by applicant's specification, whereby the proposed combination is based on hindsight, rather than the teachings of the prior art at the time of applicant's invention.

Claims 12-19 and 21 have been rejected as being obvious over Winston.

These claims set forth a pressure-controlling device wherein a controller opens a valve when the difference between the measured pressure and the desired test pressure is less than 1/4 psi (claims 12, 17-19 and 21), less than 1/8 psi (claim 13), less than 1/16 psi (claim 14), less than 1/32 psi (claim 15), and/or about 1/36 psi (claim 16). With particular reference to claim 18, it sets forth that the controller opens the valve to adjust the pressure if the measured pressure is less than the desired test pressure. Winston, which is directed towards the problem of the "unwillingness" of car/truck drivers "to monitor and maintain proper tire inflation" with "a filling station pressurized air supply or pump," does not show or suggest such precise pressure adjustments and/or pressure increasing steps. Again, the Examiner's observation that "it is obvious that any ordinary artisan skilled in the art can program a controller to open and close a valve to adjust at any desired pressure" does not address the fact that the applied art does not show or suggest any reason for making such pressure adjustments.

Claim 20 has been rejected as being obvious over Winston in view of Bezek and further in view of Markow. This claim depends from claim 12, and neither Bezek nor Markow are believed to show or suggest pressure adjustments in the range of 1/4 psi, whereby claim 20 is believed to be patentable over the applied art for this reason alone. Furthermore, this claim sets forth a motion detector for detecting when the vehicle is in motion, and that the controller adjusts the pressure when the motion detector indicates that the vehicle is at rest.⁵

Claims 22-24 have been rejected as being unpatentable over Winston in view of Bezek. Regarding claim 22, it discloses a method of testing a tire of a tire/wheel assembly rotated during multiple test runs to evaluate dynamic tire performance. The method comprises the steps of mounting the pressure-controlling device of claim 12

5. The Examiner contends that Markow "teaches a tire inflation/deflation system that discloses a motion detector (9,143)." Again, the Examiner's assistance is respectfully requested in pointing to the passage where this motion detector is disclosed in the Markow reference so that this rejection may be more fully addressed.

onto the tire/wheel assembly to maintain the pressure during multiple test runs, taking test measurements while the tire/wheel assembly vehicle is rotated during the multiple test runs, and compiling data from the multiple test runs to evaluate tire performance. Regarding claims 23 and 24, they recite a vehicle and the pressure-controlling device of claim 12 mounted on the tire/wheel assembly of the vehicle. As was discussed above, neither Winston nor Bezek are believed to show or suggest such precise pressure adjustments in the range of less than about 1/4 psi.

Accordingly, it is respectfully submitted that claims 1-24 are patentable over the applied art.

Conclusion

In view of the foregoing, it is respectfully submitted that this application is now in condition for allowance and an early indication to that effect is earnestly solicited.

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